

# RT<sup>2</sup> Profiler PCR Array (Rotor-Gene® Format)

## Mouse Focal Adhesions

Cat. no. 330231 PAMM-145ZR

For pathway expression analysis

| Format                                       | For use with the following real-time cyclers |
|----------------------------------------------|----------------------------------------------|
| RT <sup>2</sup> Profiler PCR Array, Format R | Rotor-Gene Q, other Rotor-Gene cyclers       |

### Description

The Mouse Focal Adhesions RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in cellular adhesion to the extracellular matrix (ECM). Focal adhesions and hemidesmosomes form around the intracellular domains of integrins bound to components of the ECM such as those found in the basal lamina underlying epithelial cells. Focal adhesions connect the intracellular domains of integrins to actin filaments, while hemidesmosomes connect them to keratin-based intermediate filaments. These structures regulate several key normal biological processes including angiogenesis, anchorage-dependent cell survival, cell cycle, cell migration, and wound healing. Dysregulation of focal adhesion function and integrity plays a key role in the pathophysiology of diseases such as fibrosis and epithelial-to-mesenchymal transition during tumor metastasis. The well-studied focal adhesion kinase PTK2, a cytosolic tyrosine kinase, and integrin-linked kinase (ILK) mediate PI-3-kinase/AKT and G-protein integrin-dependent signaling associated with focal adhesion-dependent processes. Downstream signaling from focal adhesions and caveolae, as well as focal-adhesion-interacting proteins (such as filamin, vinculin, and talin), then regulate the biogenesis, organization, polymerization, and depolymerization of actin filaments. Profiling the expression of focal adhesion and hemidesmosome components may lead to a better understanding of molecular mechanisms behind cell-ECM contact mediated cell biology. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in focal adhesions with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

### Shipping and storage

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RT<sup>2</sup> Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

For long term storage, keep plates at –20°C.

**Note:** Ensure that you have the correct RT<sup>2</sup> Profiler PCR Array format for your real-time cyclers (see table above).

**Note:** Open the package and store the products appropriately immediately on receipt.



## Array layout

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

## Gene table: RT<sup>2</sup> Profiler PCR Array

| Position | UniGene   | GenBank      | Symbol  | Description                                             |
|----------|-----------|--------------|---------|---------------------------------------------------------|
| A01      | Mm.253564 | NM_134156    | Actn1   | Actinin, alpha 1                                        |
| A02      | Mm.37638  | NM_033268    | Actn2   | Actinin alpha 2                                         |
| A03      | Mm.81144  | NM_021895    | Actn4   | Actinin alpha 4                                         |
| A04      | Mm.6645   | NM_009652    | Akt1    | Thymoma viral proto-oncogene 1                          |
| A05      | Mm.177194 | NM_007434    | Akt2    | Thymoma viral proto-oncogene 2                          |
| A06      | Mm.235194 | NM_011785    | Akt3    | Thymoma viral proto-oncogene 3                          |
| A07      | Mm.35059  | NM_009706    | Arhgap5 | Rho GTPase activating protein 5                         |
| A08      | Mm.3758   | NM_009954    | Bcar1   | Breast cancer anti-estrogen resistance 1                |
| A09      | Mm.19306  | NM_009794    | Capn2   | Calpain 2                                               |
| A10      | Mm.28278  | NM_007616    | Cav1    | Caveolin 1, caveolae protein                            |
| A11      | Mm.396075 | NM_016900    | Cav2    | Caveolin 2                                              |
| A12      | Mm.3924   | NM_007617    | Cav3    | Caveolin 3                                              |
| B01      | Mm.1022   | NM_009861    | Cdc42   | Cell division cycle 42 homolog (S. cerevisiae)          |
| B02      | Mm.280125 | NM_133656    | Crk     | V-crk sarcoma virus CT10 oncogene homolog (avian)       |
| B03      | Mm.21048  | NM_007764    | Crkl    | V-crk sarcoma virus CT10 oncogene homolog (avian)-like  |
| B04      | Mm.291928 | NM_007614    | Ctnnb1  | Catenin (cadherin associated protein), beta 1           |
| B05      | Mm.195916 | NM_007858    | Diap1   | Diaphanous homolog 1 (Drosophila)                       |
| B06      | Mm.436572 | NM_001033420 | Dock1   | Dedicator of cytokinesis 1                              |
| B07      | Mm.478284 | NM_134448    | Dst     | Dystonin                                                |
| B08      | Mm.295533 | NM_010227    | Flna    | Filamin, alpha                                          |
| B09      | Mm.28095  | NM_134080    | Flnb    | Filamin, beta                                           |
| B10      | Mm.4848   | NM_008054    | Fyn     | Fyn proto-oncogene                                      |
| B11      | Mm.439649 | NM_008163    | Grb2    | Growth factor receptor bound protein 2                  |
| B12      | Mm.394930 | NM_019827    | Gsk3b   | Glycogen synthase kinase 3 beta                         |
| C01      | Mm.334313 | NM_008284    | Hras1   | Harvey rat sarcoma virus oncogene 1                     |
| C02      | Mm.274846 | NM_010562    | Ilk     | Integrin linked kinase                                  |
| C03      | Mm.482186 | NM_001033228 | Itga1   | Integrin alpha 1                                        |
| C04      | Mm.34883  | NM_176922    | Itga11  | Integrin alpha 11                                       |
| C05      | Mm.5007   | NM_008396    | Itga2   | Integrin alpha 2                                        |
| C06      | Mm.26646  | NM_010575    | Itga2b  | Integrin alpha 2b                                       |
| C07      | Mm.57035  | NM_013565    | Itga3   | Integrin alpha 3                                        |
| C08      | Mm.31903  | NM_010576    | Itga4   | Integrin alpha 4                                        |
| C09      | Mm.16234  | NM_010577    | Itga5   | Integrin alpha 5 (fibronectin receptor alpha)           |
| C10      | Mm.225096 | NM_008397    | Itga6   | Integrin alpha 6                                        |
| C11      | Mm.179747 | NM_008398    | Itga7   | Integrin alpha 7                                        |
| C12      | Mm.329997 | NM_001001309 | Itga8   | Integrin alpha 8                                        |
| D01      | Mm.335520 | NM_133721    | Itga9   | Integrin alpha 9                                        |
| D02      | Mm.1618   | NM_008400    | Itgal   | Integrin alpha L                                        |
| D03      | Mm.262106 | NM_008401    | Itgam   | Integrin alpha M                                        |
| D04      | Mm.227    | NM_008402    | Itgav   | Integrin alpha V                                        |
| D05      | Mm.22378  | NM_021334    | Itgax   | Integrin alpha X                                        |
| D06      | Mm.263396 | NM_010578    | Itgb1   | Integrin beta 1 (fibronectin receptor beta)             |
| D07      | Mm.1137   | NM_008404    | Itgb2   | Integrin beta 2                                         |
| D08      | Mm.87150  | NM_016780    | Itgb3   | Integrin beta 3                                         |
| D09      | Mm.213873 | NM_001005608 | Itgb4   | Integrin beta 4                                         |
| D10      | Mm.6424   | NM_010580    | Itgb5   | Integrin beta 5                                         |
| D11      | Mm.98193  | NM_021359    | Itgb6   | Integrin beta 6                                         |
| D12      | Mm.260227 | NM_011035    | Pak1    | P21 protein (Cdc42/Rac)-activated kinase 1              |
| E01      | Mm.234204 | NM_177326    | Pak2    | P21 protein (Cdc42/Rac)-activated kinase 2              |
| E02      | Mm.40035  | NM_008778    | Pak3    | P21 protein (Cdc42/Rac)-activated kinase 3              |
| E03      | Mm.21876  | NM_027470    | Pak4    | P21 protein (Cdc42/Rac)-activated kinase 4              |
| E04      | Mm.143763 | NM_020606    | Parva   | Parvin, alpha                                           |
| E05      | Mm.323892 | NM_133167    | Parvb   | Parvin, beta                                            |
| E06      | Mm.251356 | NM_022321    | Parvg   | Parvin, gamma                                           |
| E07      | Mm.10504  | NM_011062    | Pdpk1   | 3-phosphoinositide dependent protein kinase 1           |
| E08      | Mm.29836  | NM_008844    | Pip5k1c | Phosphatidylinositol-4-phosphate 5-kinase, type 1 gamma |
| E09      | Mm.234912 | NM_011117    | Plec    | Plectin                                                 |

| Position | UniGene   | GenBank      | Symbol   | Description                                                |
|----------|-----------|--------------|----------|------------------------------------------------------------|
| E10      | Mm.222178 | NM_011101    | Prkca    | Protein kinase C, alpha                                    |
| E11      | Mm.207496 | NM_008855    | Prkcb    | Protein kinase C, beta                                     |
| E12      | Mm.7980   | NM_011102    | Prkcc    | Protein kinase C, gamma                                    |
| F01      | Mm.245395 | NM_008960    | Pten     | Phosphatase and tensin homolog                             |
| F02      | Mm.254494 | NM_007982    | Plk2     | PTK2 protein tyrosine kinase 2                             |
| F03      | Mm.18714  | NM_011223    | Pxn      | Paxillin                                                   |
| F04      | Mm.292510 | NM_009007    | Rac1     | RAS-related C3 botulinum substrate 1                       |
| F05      | Mm.1972   | NM_009008    | Rac2     | RAS-related C3 botulinum substrate 2                       |
| F06      | Mm.184163 | NM_029780    | Raf1     | V-raf-leukemia viral oncogene 1                            |
| F07      | Mm.458171 | NM_145541    | Rap1a    | RAS-related protein-1a                                     |
| F08      | Mm.233009 | NM_024457    | Rap1b    | RAS related protein 1b                                     |
| F09      | Mm.298274 | NM_054050    | Rapgef1  | Rap guanine nucleotide exchange factor (GEF) 1             |
| F10      | Mm.44561  | NM_011245    | Rasgrf1  | RAS protein-specific guanine nucleotide-releasing factor 1 |
| F11      | Mm.757    | NM_016802    | Rhoa     | Ras homolog gene family, member A                          |
| F12      | Mm.6710   | NM_009071    | Rock1    | Rho-associated coiled-coil containing protein kinase 1     |
| G01      | Mm.276024 | NM_009072    | Rock2    | Rho-associated coiled-coil containing protein kinase 2     |
| G02      | Mm.86595  | NM_011368    | Shc1     | Src homology 2 domain-containing transforming protein C1   |
| G03      | Mm.434583 | NM_009231    | Sos1     | Son of sevenless homolog 1 (Drosophila)                    |
| G04      | Mm.3770   | NM_001135559 | Sos2     | Son of sevenless homolog 2 (Drosophila)                    |
| G05      | Mm.22845  | NM_009271    | Src      | Rous sarcoma oncogene                                      |
| G06      | Mm.208601 | NM_011602    | Tln1     | Talin 1                                                    |
| G07      | Mm.309975 | NM_027884    | Tns1     | Tensin 1                                                   |
| G08      | Mm.9684   | NM_009499    | Vasp     | Vasodilator-stimulated phosphoprotein                      |
| G09      | Mm.248172 | NM_011691    | Vav1     | Vav 1 oncogene                                             |
| G10      | Mm.179011 | NM_009500    | Vav2     | Vav 2 oncogene                                             |
| G11      | Mm.279361 | NM_009502    | Vcl      | Vinculin                                                   |
| G12      | Mm.282303 | NM_011777    | Zyx      | Zyxin                                                      |
| H01      | Mm.328431 | NM_007393    | Actb     | Actin, beta                                                |
| H02      | Mm.163    | NM_009735    | B2m      | Beta-2 microglobulin                                       |
| H03      | Mm.343110 | NM_008084    | Gapdh    | Glyceraldehyde-3-phosphate dehydrogenase                   |
| H04      | Mm.3317   | NM_010368    | Gusb     | Glucuronidase, beta                                        |
| H05      | Mm.2180   | NM_008302    | Hsp90ab1 | Heat shock protein 90 alpha (cytosolic), class B member 1  |
| H06      | N/A       | SA_00106     | MGDC     | Mouse Genomic DNA Contamination                            |
| H07      | N/A       | SA_00104     | RTC      | Reverse Transcription Control                              |
| H08      | N/A       | SA_00104     | RTC      | Reverse Transcription Control                              |
| H09      | N/A       | SA_00104     | RTC      | Reverse Transcription Control                              |
| H10      | N/A       | SA_00103     | PPC      | Positive PCR Control                                       |
| H11      | N/A       | SA_00103     | PPC      | Positive PCR Control                                       |
| H12      | N/A       | SA_00103     | PPC      | Positive PCR Control                                       |

## Related products

For optimal performance, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

| Product                                                         | Contents                                                                                                 | Cat. no. |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------|
| RT <sup>2</sup> First Strand Kit (12)                           | Enzymes and reagents for cDNA synthesis                                                                  | 330401   |
| RT <sup>2</sup> SYBR Green ROX <sup>™</sup> FAST Mastermix (2)* | For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers | 330620   |

\* Larger kit sizes available; please inquire.

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RT<sup>2</sup> Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at [www.qiagen.com](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

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